

Static Inverters

Replacement of rotary converters

Improving the availability, reliability and safety of your NPP with our modernization concept

Challenge

In the past, rotary converters were often used for uninterruptible, three-phase supply in NPPs. Since they were introduced these converters have performed reliable services in different applications.

Due to the continued progress in development and technology, rotary converters are becoming more and more obsolete. Therefore, it is increasingly difficult to carry out maintenance and procure spare parts.

Solution

Considering the obsolescence, lack of spare parts and maintenance difficulties, intelligent alternative solutions had to be found. One of them, our preferred cost-effective solution, is the replacement of the rotary converters by static inverters.

Framatome has developed several concepts and studies in order to improve the implementation and integration of static inverters in existing NPPs in accordance with different customer requirements and specifications.

Our modernization concept includes the parallel connection of two inverters (2 x 100%) in combination with one static transfer switch (STS).

The independent operation of each inverter guarantees that an inverter will not be affected by failure of the other one.

Therefore, the unavailability of one inverter due to maintenance or failure will not affect the power supply of safety-related electrical consumers. This is guaranteed by the remaining inverter and contributes to improving the safety and availability of your power plant.

In the event of an unexpected failure of both inverters, the STS will switchover uninterruptedly to the assigned AC grid and guarantees the feeding of the connected AC loads.

In addition, a manual bypass enables maintenance and repair of the inverter during operation.



Nuclear Power Plant Gösgen (Switzerland):
Two inverters (170 kVA each) and a STS (bypass)

Customer benefits

Linked to the integration of static:

- Less and more convenient switching operations
- Increase in availability by the use of 2 x 100% concepts
- Uninterruptible switchover and switchback
- Improvement in spare parts availability
- Less maintenance
- Easy handling

Your performance
is **our** everyday **commitment**

Technical information

Our Full Services:

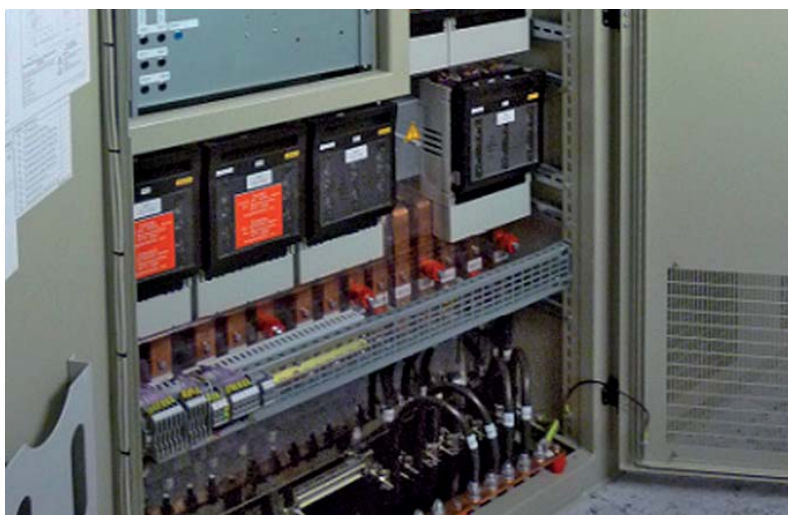
- Project Management
- Support during approval processes
- Coordination with suppliers
- Engineering: concepts and studies Integration of Electrical- and I&C systems
- Qualification
- Civil Engineering: review of structural requirements and design of customized solutions
- Documentation
- Installation works: dismantling, installation and commissioning

Our Full Services:

We offer international experience in the qualification of electrical systems in NPPs in accordance with different nuclear standards including KTA, RCC-E and IEEE.



380-V-inverter with 170 kVA



380-V-STS (bypass) with 340 kVA

References

Our approved modernization concepts have been successfully implemented in many NPPs worldwide:

- Gundremmingen (Ger)
- Philippsburg (Ger)
- Emsland (Ger)
- Gösgen (CH)
- Angra (Brazil)

All New Build EPR Projects:

- Olkiluoto 3
- Flamanville 3
- Taishan 1&2

Contact: electrical-systems@framatome.com
www.framatome.com

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